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An experimental investigation of emotional willingness and physical pain tolerance in deliberate self-harm: the moderating role of interpersonal distress

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Abstract

Although theoretical and clinical literature emphasize the role of both an unwillingness to experience emotional distress and physical pain tolerance in deliberate self-harm (DSH), research on their associations with DSH remains limited. This study sought to examine the relationships between DSH and the willingness to experience emotional distress and tolerate physical pain, including the moderating role of interpersonal distress in these relationships. To this end, young adults with recent DSH (n = 43) and controls without any DSH (n = 52) were randomly assigned to 1 of 2 emotion-induction conditions (distressing or neutral), after which behavioral measures of both the willingness to experience distress and physical pain tolerance were obtained. Consistent with hypotheses, findings indicated heightened physical pain tolerance among self-harming individuals only under conditions of interpersonal distress. Furthermore, findings provided some support for the hypothesized association between DSH and the unwillingness to experience emotional distress, suggesting that self-harming women evidence less willingness to experience emotional distress only under conditions of depleted regulatory capacity (eg, following an interpersonal stressor).

1. Introduction

Clinical researchers have become increasingly interested in behaviors involving the deliberate, direct destruction of body tissue without conscious suicidal intent, but resulting in injury severe enough for tissue damage to occur, referred to here as *deliberate self-harm* (DSH) [1-3]. Deliberate self-harm is a serious clinical concern. Although this behavior is, by definition, distinguished from suicidal behaviors involving an intent to die, individuals who engage in DSH are at heightened risk for suicide [4]. Furthermore, DSH is associated with a wide range of negative interpersonal and intrapersonal consequences, including shame, guilt, and social isolation [5,6].

Although originally studied primarily within the context of borderline personality disorder (BPD) [5], a growing body of evidence suggests that DSH is much more common among nonclinical populations than previously thought. In particular, evidence suggests that community young adults are at especially high risk for DSH, with rates of DSH among various nonclinical young adult populations ranging from 17% to 41% [7-10]. Further, although the vast majority of research on DSH has focused exclusively on the factors associated with this behavior among female samples, recent findings indicating comparable rates of DSH among female and male college students [11], adolescents [12], and military recruits [2] highlight the importance of examining the development and maintenance of DSH among male subjects as well.

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1.1. Mechanisms underlying DSH

Despite the clinical relevance and associated negative consequences of DSH, research on the mechanisms that underlie this behavior has been limited. However, theoretical literature suggests that DSH stems from an unwillingness to experience emotional distress [1,13]. For example, Linehan [13] has suggested that one aspect of emotion dysregulation that underlies many of the behaviors associated with BPD (including DSH) is an unwillingness to tolerate emotional distress (which may prompt efforts to escape or avoid that distress, such as DSH). Likewise, Chapman et al [1] suggest that DSH often functions to escape or avoid unwanted emotional distress, and stems (in part) from the inability and/or unwillingness to tolerate emotional arousal. This theoretical emphasis on the role of the unwillingness to experience emotional distress in DSH is consistent with findings that one of the most frequently reported reasons for DSH is to escape or eliminate unwanted feelings (eg, Brown et al [14]).

One way in which DSH may function to provide escape from unwanted emotional distress is by providing physical stimulation (ie, pain) sufficiently compelling to divert the individual's attention away from painful emotional arousal [1]. Specifically, researchers have suggested that the physical pain provided by DSH may serve to distract the individual from emotional distress [1,15]—an emotion regulation strategy regarded as particularly difficult for individuals with BPD and related behaviors such as DSH [13]. As such, theoretical literature highlights the potential importance of physical pain in the relief provided by DSH.

Although research on the role of these mechanisms in DSH remains limited, preliminary evidence suggests the relevance of these factors to DSH and highlights the importance of examining these relationships further.

1.1.1. Physical pain tolerance

Although no research has examined physical pain tolerance among nonclinical samples of individuals with DSH, studies have found that self-harming BPD patients demonstrate significantly higher physical pain tolerance than depressed patients or healthy controls [16]. However, there is some evidence to suggest that the willingness to tolerate physical pain among BPD patients (with and without DSH) is context-dependent and heightened under conditions of emotional distress. Specifically, McCown et al [17] found that BPD patients exhibited a significantly higher physical pain tolerance than patients with other personality disorders and healthy controls only under conditions of heightened stress (and not at baseline), consistent with findings of a positive association between physical pain thresholds and emotional distress among patients with BPD (most of whom had current DSH) [18]. Importantly, findings of heightened physical pain tolerance and thresholds among self-harming BPD patients under conditions of emotional distress are in contrast to findings among non-DSH and non-BPD individuals, who generally show lower physical pain tolerance during conditions of emotional distress [19]. As such, these findings suggest that physical pain may function differently among individuals with and without DSH.

1.1.2. Willingness to experience emotional distress

Research on the relationship between DSH and the willingness to experience emotional distress is inconclusive, with the few studies that have examined this relationship producing mixed results. Specifically, one study found evidence of less willingness to tolerate emotional distress among individuals with a history of DSH (vs those without DSH) [20]; another found no association between the willingness to experience emotional distress and DSH [21]; and still another found that although the willingness to experience emotional distress did not differ between individuals with and without a history of DSH, it was associated with the frequency of DSH among self-harming individuals without BPD pathology [22].

Importantly, however, these equivocal findings are not inconsistent with theoretical literature suggesting that self-harming BPD patients demonstrate great variability in emotional and behavioral functioning, performing well and evidencing few coping deficits under certain conditions but demonstrating considerable emotion regulation-related deficits and ineffective coping under other conditions [13]. Indeed, although a variety of methodological issues may account for the discrepant findings with regard to the association between DSH and the willingness to experience emotional distress in the studies noted above (eg, procedural differences, sample differences, small sample sizes), another possibility is that investigations of a generalized unwillingness to experience emotional distress in DSH fail to capture the context-dependent nature of emotional unwillingness among individuals with DSH (consistent with evidence of the context-dependent nature of physical pain tolerance within this population, as well as theoretical literature suggesting condition-specific variability in coping among self-harming individuals).

One set of conditions particularly relevant to the variable functioning of individuals with DSH may be the individual's mood, which has been suggested to moderate emotion-related behavioral capabilities [13]. The mood-dependent nature of particular coping abilities among individuals with DSH may be explained by Baumeister and colleagues' [23] ego-depletion model of self-regulation. According to this model, the capacity for self-regulation is a limited resource (similar to energy or strength). Thus, exposure to any situation or activity that requires self-regulation or self-control will deplete this resource, temporarily limiting one's capacity for self-regulation [23,24]. Although many different activities and situations may deplete self-regulation resources, certain events appear more likely to result in depleted self-regulatory capacity, including the use of maladaptive regulation strategies (such as the suppression of emotions, thoughts, and urges) [23,24] and exposure to